Amendments to the Specification

Please replace the paragraph spanning from p.4, line 15 – p.5, line 11 with the following amended paragraph:

In another embodiment, the invention provides a transgenic mouse comprising a somatic cell, comprising:

(a) in a first chromosome of a chromosome pair, a polynucleotide comprising a promoter operably linked to a chimeric sequence encoding an N-terminal portion of a first marker and a C-terminal portion of a second marker separated by a recombinase target site;

(b) at a homologous location of a second chromosome of the chromosome pair, a polynucleotide comprising a promoter operably linked to a chimeric sequence encoding an N-terminal portion of the second marker and a C-terminal portion of the first marker separated by a recombinase target site; and

(c) a recombinase expressed by the cell, and which promotes recombination between the target sites of the first and second chromosomes;

wherein recombinase-promoted somatic mitotic recombination between the target sites yields alternative pairs of X- or Z-segregated progeny cells,

wherein the X-segregated progeny cells comprise a first progeny cell comprising the first chromosome, and a recombined variant of the second chromosome comprising the promoter operably linked to a sequence encoding the N- and C-terminal portions of the ~~first~~ second marker; and a second progeny cell comprising the second chromosome, and a recombined variant of the first chromosome comprising the promoter operably linked to a sequence encoding the N- and C-terminal portions of the ~~second~~ first marker, and

wherein the Z-segregated progeny cells comprise a first progeny cell comprising the first chromosome and the second chromosome, and a second progeny cell comprising a recombined variant of the first chromosome comprising the promoter operably linked to a sequence encoding the N- and C-terminal portions of the first marker; and a recombined variant of the second chromosome comprising the promoter operably linked to a sequence encoding the N- and C-terminal portions of the second marker,

wherein the first X-segregated progeny cell produces a ~~first~~ second marker-specific signal, the second X-segregated progeny cell produces a ~~second~~ first marker-specific signal, the

first Z-segregated progeny cell produces neither a first nor second marker-specific signal, and the second Z-segregated progeny cell produces both a first and a second marker specific-signal.

Please replace the paragraph spanning from p.5, line 13 – p.6, line 12 with the following amended paragraph:

In another embodiment, the invention provides a method to generate and mark chromosome recombination in somatic cells in a subject mouse by:

(a) introducing in a first chromosome of a chromosome pair of a pluripotent cell, a polynucleotide comprising a promoter operably linked to a chimeric sequence encoding an N-terminal portion of a first marker and a C-terminal portion of a second marker separated by a recombinase target site;

(b) introducing at a homologous location of a second chromosome of the chromosome pair of the pluripotent cell, a polynucleotide comprising a promoter operably linked to a chimeric sequence encoding an N-terminal portion of the second marker and a C-terminal portion of the first marker separated by a recombinase target site,

wherein the cell expresses a recombinase which promotes recombination between the target sites of the first and second chromosomes; and

(c) growing the cell to obtain a mouse comprising differentiated progeny cells of the pluripotent cell, wherein recombinase-promoted somatic mitotic recombination between the target sites in a differentiated progeny cell yields alternative pairs of X- or Z-segregated progeny cells,

wherein the X-segregated progeny cells comprise a first progeny cell comprising the first chromosome, and a recombined variant of the second chromosome comprising the promoter operably linked to a sequence encoding the N- and C-terminal portions of the ~~first~~ second marker; and a second progeny cell comprising the second chromosome, and a recombined variant of the first chromosome comprising the promoter operably linked to a sequence encoding the N- and C-terminal portions of the ~~second~~ first marker, and

wherein the Z-segregated progeny cells comprise a first progeny cell comprising the first chromosome and the second chromosome, and a second progeny cell comprising a recombined variant of the first chromosome comprising the promoter operably linked to a sequence encoding the N- and C-terminal portions of the first marker; and a recombined variant of the second

chromosome comprising the promoter operably linked to a sequence encoding the N- and C-terminal portions of the second marker,

wherein the first X-segregated progeny cell produces a ~~first~~ second marker-specific signal, the second X-segregated progeny cell produces a ~~second~~ first marker-specific signal, the first Z-segregated progeny cell produces neither a first nor second marker-specific signal, and the second Z-segregated progeny cell produces both a first and a second marker specific-signal.